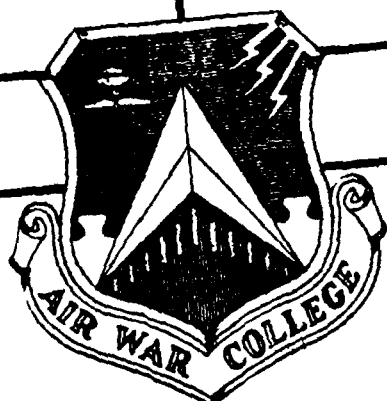


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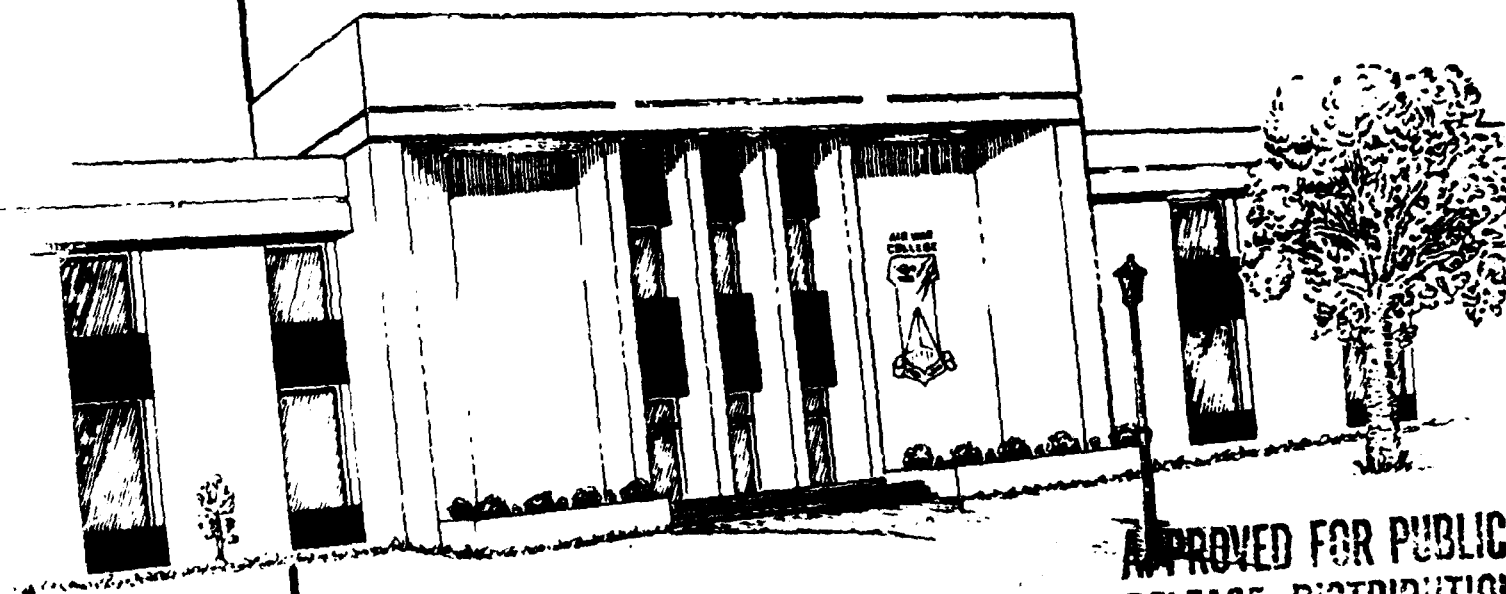
CONTRACTOR LOGISTICS SUPPORT FOR THE TACTICAL AIR FORCES:  
CAN IT BE MADE AFFORDABLE?

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CONTRACTOR LOGISTICS SUPPORT FOR THE TACTICAL AIR FORCES:  
CAN IT BE MADE AFFORDABLE?

by

Jan D. Edeburn  
Colonel, USAF

A DEFENSE ANALYTICAL STUDY SUBMITTED TO THE FACULTY  
IN  
FULFILLMENT OF THE CURRICULUM  
REQUIREMENT

Advisor: Colonel John A. Brantner

MAXWELL AIR FORCE BASE, ALABAMA

January 1990

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## EXECUTIVE SUMMARY

**TITLE:** Contractor Logistics Support for the Tactical Air Forces: Can It Be Made Affordable? **AUTHOR:** Jan D. Edeburn, Colonel, USAF

Contractor logistics support (CLS) is cradle to grave system support that is increasingly being used as an alternative to blue suit maintenance in areas where combat participation is not expected. However, there is a significant CLS funding shortfall for the tactical air forces (TAF) throughout the Five Year Defense Plan. This shortfall can be eliminated by using innovation and ingenuity to eliminate unnecessary CLS requirements. *Monograph 23*



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## BIOGRAPHICAL SKETCH

Colonel Jan D. Edeburn (M.S., Troy State University) was a primary point of contact for TAF CLS matters during his recent TAC headquarters assignment as Chief, Fighter/Reconnaissance Division, Directorate of Maintenance Engineering, DCS Logistics. He is an aircraft maintenance officer who has spent most of his career in fighter wings, including a Southeast Asia tour. Colonel Edeburn has commanded all three major types of tactical aircraft maintenance squadrons: an aircraft generation squadron; a component repair squadron; and an equipment maintenance squadron. He has also served as the Assistant Deputy Commander for Maintenance at both the 81 TFW and the 1 TFW.

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## CHAPTER I

### INTRODUCTION

#### Overview

Contractor logistics support (CLS) is cradle to grave system support that is increasingly being used as an alternative to blue suit maintenance in areas where combat participation is not expected. For example, the Air Force recently converted aircraft flight simulator maintenance to CLS. Although a favorable cost benefit analysis is required prior to the adoption of CLS, the CLS concept is not without fault--it results in a "must pay" bill since the result of non-payment would lead to contract termination in an area normally without blue suit capability. Plus, termination without cause routinely results in penalty costs to the government. In other words, "must pay" equates to the required cost of being able to perform a unit's primary mission. (1:1-2; 2:1-2) However, there is a \$30-35 million annual CLS funding shortfall for the tactical air forces (TAF) in the outyears of the Five Year Defense Plan (FYDP). (3)

This analysis will address CLS funding and policy changes that bear on CLS requirements. Specifically, this study will provide an assessment of existing CLS contracts for aircraft maintenance trainers and aircrew training devices. It will

show that CLS maintenance requirements are, in general, overstated and that some contracted services could be reduced with corresponding reductions in cost. Finally, it will suggest initiatives to decrease TAF CLS requirements and costs without sacrificing mission needs.

### Background

A thorough topic search shows that surprisingly little has been written about CLS in terms of analyzing requirements, contracting strategy to decrease costs, or the funding dilemma that exists today. These factors, when taken together, support the need to assess the TAF's CLS process.

For the TAF, CLS shortfall problems began when TAC was tasked to obtain offsets for fiscal year (FY) 1985 maintenance manpower reductions. (2:1) The Air Staff determined the Tactical Air Command (TAC) owed \$3.8 million in FY 89, \$4.6 million in FY 90, and \$19 million thereafter. TAC offered Air Force Logistics Command (AFLC) offsets for the FY 88 Program Objective Memorandum (POM), but was told these offsets were not needed. Later, when offsets were requested, TAC proposed down-scaling requirements, but TAC's bottom line was that the shortfalls be "...treated as an Air Force problem." (2:2)

Actually, TAC's initial CLS shortfall to offset manpower reductions was only about 60-65 percent of the overall TAF CLS shortfall. Although the requirement changes often because ongoing contract negotiations keep requirements fluctuating, the following shows the TAF CLS picture as of 30 June 1989. (3)



All figures are rounded to the nearest million.

	FY90	FY91	FY92	FY93	FY94
Requirement (\$ millions)	101	112	109	109	111
Funded	71	76	80	79	76
Delta	30	36	29	30	35

FY 89 requirements and FY 90 requirements were scrubbed and the "must pay" bill for these years was ultimately met with the help of additional funds. For example, in FY 89, \$8.1 million came from the Air Staff and \$1.6 million from the KC-10 program. In FY 90, the Air Staff funded \$4 million for the ground launched cruise missile. (4) Although the bill was paid in both years, it was an extremely painful process that required considerable general officer involvement.

Part of the problem was that until recently the overall funding responsibility for CLS belonged to AFLC. In the past, AFLC paid the bill, whatever it was. The users normally only identified requirements to AFLC for contract execution. (5:1-2) However, with the 1988 funding crunch, on top of the existing CLS shortfall, AFLC could not pay the bill. As a result, AFLC tasked commands to prioritize their CLS requirements. (6:1-2) The commands, including the TAF, believed this was an impossible approach since the bill had to be paid or the contracted service would end--without a blue suit capability to continue. Hence a Catch 22 situation developed that has only temporarily been resolved by extraordinary measures and reprogrammed monies. (4)

The adopted solution to the problem was to decentralize

funding to the user beginning with the FY 90 financial plan and the FY 92 POM. (7:1) The biggest plus to this change is that the user, vice AFLC, will advocate and defend command requirements through the planning, programming, and budgeting system (PPBS). In the past, the large CLS funding shortfall has been attributed in part, to inadequate command advocacy through the Air Force Board Structure. (5:1-2)

On the other hand, CLS growth continues as the result of "...past corporate Air Force decisions to forego organic logistics support in favor of reliance on contractors." (5:1) This growth, when viewed in terms of the 11 percent funding decrease of the past four years, helps focus the on-going seriousness of the CLS funding problem. (8:6,81)

In addition, decentralization entails other procedural changes for both users and AFLC. The most important change is the interrelationship that must occur between the user, who now holds the purse strings, and AFLC, the contracting agency. In the past, the funding and contracting process was entirely within AFLC. The user still has an obligation to ensure requirements are valid and the contracting agency has a similar obligation to acquire the service at an affordable cost, but coordinating this effort may be much more difficult. (7:1-4)

Another important change is the Air Force's recent decision to test weapon system peculiar program decision packages (PDPs). The FY 92-97 POM submission will test this change for two TAF aircraft, F-16s and F-111s. The results are especially

important since the change will "...fold together the efforts and decision-making processes of the system program manager (SPM), HQ AFLC, the using command(s) and the Air Force Board Structure." (9:1) Inclusion of CLS in this process means increased visibility and ensures early opportunities for re-programming funds to meet critical shortfalls. Additionally, unresolved shortfalls and their impacts will now be included in the weapon system master plan (WSMP) and reviewed by the Air Force Board. (9:1-2)

These improvements have produced a CLS advocate, but they will not change the funding requirement in the foreseeable future. As a result, CLS requirements must be meticulously analyzed. Questions to be asked are: What is the real requirement, who specifies and controls requirements, and what options are available to eliminate or refine requirements without impacting needed support?

## CHAPTER II

### CLS TODAY

#### Program Guidance

CLS is a preplanned alternative to organic (blue suit) logistics capability. As such, it is designed to support a system, subsystem, or modification throughout its life cycle at selected organizational, intermediate, and/or depot levels. The decision to use or not use CLS is normally made during the acquisition process and is based on both mission and cost considerations. Typically, CLS is used to support equipment with small inventories or systems in which rapid technological change is occurring. In these cases, Air Force training and support costs often exceed contractor costs. (10:6-7)

Cost, however, is not the only selection criteria. Systems subject to direct wartime use present special problems for contract support during contingencies. As a result, CLS is usually not considered feasible for wartime support. (10:6)

The Office of Management and Budget (OMB) Circular A-76, "Performance of Commercial Activities", and its implementing directives, provides specific government guidance to evaluate blue suit or contractor support. (11) The Circular directs the private sector should be used if it is more economical to do so. It also encourages competition between the government and the

civilian sector, but acknowledges that some functions are governmental in nature and must be performed by federal employees. (11:1-5) A-76 includes flow charts to help assess the organic/contract decision for both new and existing contracts. Although these flow charts provide guidance on what support concept to select, the A-76 decision process has a major fault--it assumes full funding is available for both options. Simply stated, the "must pay" aspect of CLS is not considered.

Despite this funding concern, CLS savings in the hundreds of millions are documented. One of these, a 1982 study on KC-10 maintenance, concluded that \$684 million would be saved over a 20 year life cycle using contract vice organic support (except on-aircraft maintenance). (12:36) Additionally, there are other contractor production advantages. For example, contractors have a stable workforce and most of their work time is direct duty since there are no military training requirements or additional duties. Contractors are also motivated to perform well since their continuance is subject to periodic rebidding of the CLS contract. (13:38)

Conversely, the contract may be so specialized no competitive bidder exists. In such cases a hostage situation may occur. Contract maintenance savings may also incur operational limitations. If the situation warrants, CLS can be converted back to organic support. (10:7) However, conversion costs to procure needed tools, support equipment and technical

data (unless already owned) would normally be high. Plus, there are personnel training costs to complete such a transfer. In effect, once CLS is selected as the support concept, conversion is unlikely and contract costs become "must pay" bills.

Recent changes levied these "must pay" bills on using commands. Specifically, users must now plan, program and budget for existing and planned CLS. Other user requirements include working with implementing, supporting, and training commands to develop methods to implement CLS; helping develop statements of work; assisting with interface agreements; participating in contractor source selection; providing required supply support; monitoring contractor performance; and ensuring warranty requirements are met. (10:8-9)

Some CLS programs also have Air Staff program management directive (PMD) guidance. In general, PMDs expand regulatory guidance and establish a framework for implementation. (14:1-7) For example, PMD 5220 levies specific requirements for contracting aircrew, missile, physiological, maintenance, and space training devices support. Currently, PMD 5220 is being rewritten to incorporate using command concerns. This rewrite, like other recent changes, makes it clear that users will do more than just pay the bill--they will help shape and size CLS.

#### TAF CLS Programs

A-76 guidance, relative satisfaction with existing CLS, and a variety of new, technically complex training devices has

lengthened the list of CLS programs. Currently, over 30 TAF systems rely on CLS. Although most perceive that CLS is just a logistics issue, it is not. The largest user is operations, with a variety of flight and mission simulators. In addition, new systems are normally managed by the requirements directorate during acquisition. A June 1989 list of FY 91 TAF CLS programs, which shows ownership and funding status, is provided in the Appendix. (3)

The scope and depth of TAF CLS is also diverse. It can include any or all parts of organizational or intermediate maintenance. E-9A CLS, for example, is full support, while RF-4C support is limited to a single electronic warfare system. Similarly, CLS may include varying levels of maintenance to support associated portions of a weapon system. For example, at the field level, F-111 aircraft only use CLS for weapons systems trainers (WSTs). All other field support is blue suit. (3) Again, the amount of CLS is a function of needed capability and cost considerations.

Within the TAF there are also a wide variety of resource arrangements. Traditionally, CLS has meant that all spares, support equipment, and other resources to meet performance criteria were provided by the contractor. Under this concept, ownership passes to the government only when the spare is installed in the system. At the other end of the spectrum, the Air Force may own all the wherewithal. In this case, the contractor maintains the spares, support equipment, and other

resources as part of the overall contract. Normally, CLS requirements are tailored to ensure duplication and wasted effort does not occur for either the contractor or the government. Resource tailoring is also important because Air Force ownership of spares and support equipment offers the potential for a cheaper recompetition effort because a new contractor would not have to procure these items. Items not needed for recompetition are not normally bought by the government. Additionally, if government furnished equipment (GFE) is available, it is usually used in lieu of contractor furnished equipment (CFE) and that portion of the CLS is deleted from the contract. (10:7)

#### Resolved Issues

During the last year or so a variety of CLS issues have been successfully resolved. Of these, the near term funding issue was the most pressing. Funding shortfalls threatened contract terminations and associated contract default costs. Although the "must pay" requirements were ultimately scrubbed and alternate sources of money were found to meet expenses, this effort highlighted the need to review long term CLS advocacy and resultant funding issues. Consequently, in January 1989, an Air Force wide CLS meeting was convened to look at specific revisions to the CLS process as a means to correct projected funding deficits.

The outcome of the meeting was an Air Staff decision to hold users responsible for CLS shortfalls. This decision



did not absolve AFLC nor the Air Staff of their responsibilities in the PPBS process, but it forces users to reduce requirements or provide offsets. (7:1) In practice, users and AFLC will jointly build the PDPs. The TAF will fund the requirements, effective with the FY 90 financial plan and the FY 92 POM, and set the priorities for CLS based on the strength of its advocacy. AFLC, on the other hand, will administer the contracts--the TAF defends the tempo and AFLC defends the pricing. (4)

#### What Remains

Although the basic course of CLS has been recharted and the initial steps of transition have begun, three major hurdles remain. First, recent CLS decisions need to be institutionalized. New program guidance needs to find its way into regulations and PMDs. In this regard, the administrative process necessary to coordinate requirements, negotiate contracts, and ensure funding control needs definition. For example, when user requirements are input to AFLC for contract execution, users need to understand what can/cannot be done contractually, and contracting people need to be equally aware of user needs. Similarly, control and tracking of fenced CLS monies, as agreed at the January 1989 CLS meeting, should be formalized. (7:1-4)

Next, Air National Guard and Air Force Reserve funding decentralization should be reevaluated. Decentralization was discussed at the January 1989 CLS meeting. At that time

it was tentatively agreed that Guard and Reserve CLS procedures should not change since their monies come from a different source. (7:3-4) However, decentralization may provide added cost saving opportunities, similar to those expected in the active forces.

Lastly, users and AFLC should develop effective strategies to determine credible requirements. This is not a new problem, but one that is increasingly more acute as funding becomes tighter. And, significant improvements in the requirements process appear possible. The next chapter will look at two types of CLS contracts, aircraft maintenance trainers and aircrew training devices, and suggest options that can reduce costs without significantly changing overall support.

## CHAPTER III

### CLS REQUIREMENTS

CLS is bought to provide a high level of systems support, as good as that provided by blue suiters. (15:37) However, prudent management and funding shortfalls dictate a closer look at CLS. (16:2-3) In this regard, two significant types of CLS contracts, aircraft maintenance trainers and aircrew training devices, will be reviewed. The intent is to look at these contracts in terms of what we have, what we wish to have, and what innovations exist to more closely balance needs with available monies. (17:20-23)

#### Maintenance Trainers

Until recently, aircraft maintenance trainer support, including servicing, scheduled maintenance, fault isolation, and repair was an Air Training Command (ATC) responsibility. However, this support became a user responsibility for weapon system peculiar maintenance trainers that use CLS, even though trainer ownership still resides with ATC. Additionally, PMD 5220 directed that computerized maintenance trainers be converted to either CLS or total contract training (TCT) during the next system update or other reasonable time. (14:8-9) Since most newer TAF maintenance trainers are computerized, TAF CLS costs will rise considerably as conversions occur. Then

too, there will be routine software and hardware updates to keep pace with aircraft modifications. Again, additional costs for the user.

Despite unavoidable CLS growth costs, there were other proposals that would increase costs. One, a software development facility initiative, requires an initial investment but offers long term savings. Another, which provides full funding for hardware updates and contractually agreed fix times, would improve serviceability rates and provide better overall support. However, this proposal gives higher than necessary levels of support and requires overly zealous response times because it completely eliminates blue suiters from the maintenance process and establishes contractor response times of 48 hours in the continental United States (CONUS) and 72 hours overseas. Without doubt, these repair and response proposals would provide maintenance trainers to meet any need. Currently, it is not uncommon to wait months for parts to return a trainer to service. The same is true for software updates. (18:1-3)

Unfortunately, projected TAF costs for the above support proposals went up by a factor of ten. This increase is somewhat higher than it should be because previous software costs for F-15 and F-16 maintenance trainers were not included in the computation. If these costs were included, the increase would still be far beyond what the TAF could afford. As a result, the TAF sought alternatives that would provide

improved trainer support without excessive costs. After reviewing the current and proposed maintenance trainer support plan, two changes were suggested and ultimately adopted by the TAF, ATC, and the Air Staff. (19:1-3)

The first was to continue to have the instructor perform routine servicing and maintenance, including built-in-test (BIT) checks. Continuation of these tasks eliminates the need for the contractor to perform routine tasks. For example, when failures occur, BIT checks and board swapping between like trainers often isolates the fault. Defective parts can then be returned for repair, without necessitating a contractor visit.

The second proposal was to extend the contractor response time to approximately one week in the CONUS and two weeks overseas. This change allows priority return and repair/replacement of defective parts, again without a contractor visit.

The overall result of these alternatives will be that the contractor no longer needs to be readily available at every CLS location. Similarly, the contractor may need to stock fewer parts because of the longer response times.

Cost comparison between the original proposal and the compromise alternative is not available yet, but it should be significant--without a great reduction in desired support levels. The one week CONUS, two week overseas repair time is a quantum improvement over the several month period it often takes at present.

### Aircrew Training Devices

Aircrew training devices (ATDs), like computerized maintenance trainers, were a blue suit responsibility until PMD 5220 directed conversion and phase out of the aircrew/missile training device career field. Conversion to CLS was needed to retain as much military manpower as possible for direct combat requirements and was based primarily on the fact that the military essential test of AFR 26-1 was not met. Costs were also considered prior to a conversion decision. (14:8)

Initial start costs for ATD contractors was relatively small because the Air Force provided ATD facilities, as well as administrative and maintenance areas. Life cycle costs were also lower because the conversion plan stipulated that the Air Force would provide logistics and most other required support, other than manpower to operate and maintain the simulator. Included as government furnished support are existing technical data, tools, and Air Force spares. However, the Air Force retains ownership of these assets, and ensures configuration control to reduce future recompetition costs. (20)

A typical CLS simulator operation, like that in the 1 TFW, has a people mix. The simulator training division chief and the quality assurance representative (QAR) are blue suiters; the simulator project officer is an Air Force civilian; and the site manager, instructors (authorized three), and maintainers (authorized eight) are contractor personnel--for a total authorization of 15. Previous blue suit authorizations were

for 16 people. Functionally, the simulator training division chief has overall simulator responsibility. The contractor site manager ensures contract requirements are met, and the QAR representative monitors contractor quality. CLS instructors operate the simulator, except for turn on/turn off. CLS maintenance people perform simulator servicing, and scheduled and unscheduled maintenance. Maintenance people also file technical data, maintain forms, schedule precision measurement equipment (PME) for calibration/repair, and function as the security manager. Contract requirements specify a 95 percent mission capable rate for the simulator during scheduled simulator flying periods--up to 15 hours per day. These criteria are routinely met or exceeded. (21)

However, as with maintenance trainers, there are opportunities to refine responsibilities and requirements--with resultant cost savings. For example, TAC is working an initiative to replace contract surge provisions with a cheaper overtime clause. And, other changes are possible. These include a review of seemingly redundant/unnecessary servicing requirements, like the 400 hour diagnostic check which takes seven hours of simulator down time. The rationale for review is that system performance is constantly monitored. Another savings could occur by returning some nontechnical workload to the simulator project officer and/or the QAR. The simulator site manager at the 1 TFW estimated he could reduce his workforce by one or two people if administrative tasks like

technical data and forms maintenance, PME scheduling, and security manager responsibilities were returned to the Air Force. Similarly, the contractor estimated he could save up to four more people if instructors were required to power up/down the simulator, rather than having to keep maintenance people available for this task. Most instructors already know how to perform these tasks, and training for other instructors would be worth the long term savings. (22)



## CHAPTER IV

### CONCLUSIONS

CLS can be affordable for the TAF. In the past, CLS was viewed by users as one of those bills AFLC paid--users stated needs and waited for AFLC to provide the requested support. All this changed when users had to pay the bill. As ominous as this problem seemed initially, it actually provides the user significant long term opportunities. For example, the user now has more voice in the support process through the power of the purse. Users can also tailor their needs and use their ingenuity to reduce costs, with resultant savings retained by the using command.

While this may sound relatively simple and easy, it is not. First, although opportunities exist to tailor needs, there is little chance of tailoring to the point of eliminating CLS or converting existing contracts back to blue suit maintenance. A-76 is clear--the trend is towards more CLS, not less.

Secondly, a significant coordination effort is needed to determine and formally define the ground rules to effectively manage CLS now that decentralization has occurred. This is especially important for the TAF since multi-command relationships are involved. Additionally, CLS is not just a

maintenance issue--it includes several functional areas.

Finally, although significant opportunities exist to reduce CLS costs, finding them will require innovation and ingenuity. What is needed is a relook at every CLS contract to ensure there is no "gold plating."

Despite many hurdles, CLS decentralization has progressed to this point with relative ease. The recommendations that follow are those needed to complete the transition and keep CLS costs to a minimum.

## CHAPTER V

### RECOMMENDATIONS

1. Formalize the TAF CLS process with supplements to AFR 800-21 and AFR 172-1. Include responsibility requirements and contract review procedures.

2. Review current TAF CLS contracts to determine if opportunities exist to cut costs without reducing support to an unacceptable level. The following questions are not all inclusive but are offered as a guide to this review process.

a. Are there any administrative or security requirements in the contract that can be eliminated or reduced?

b. Is it possible to cut contract costs by reducing contingency requirements such as overtime and night/weekend work? Or, can needed contingency clauses be traded for less costly ones?

c. Are response and repair times such that the contractor can keep costs to a minimum? For example, will the mission permit repair times that allow parts to be shipped to the contractor for repair and return/replacement? Or, will response and repair times permit the contractor to be "on call" vice "on site?"

d. Are maintenance requirements essential? For example, are preventive maintenance and servicing requirements valid?

e. Are contractor people able to perform more than one task? If not, is it worth the initial training cost to qualify them on additional tasks?

f. Are in-place blue suit people able to accomplish any/all of the CLS tasks? If so, what tasks and at what cost? How do contract and blue suit costs compare for these tasks?

3. Consider this study applicable to all commands involved with CLS, including implementing and supporting commands, and the Guard and Reserve.

# APPENDIX: FY91 TAF CLS

SYSTEM	PROGRAM MANAGER	FINANCIAL STATUS (\$K) REQUIREMENT / FUNDED	
A-10 Operational Flight Trainer (OFT)	Operations	1173	3738
E-3A Electronic Support System (ESS)	Logistics	1889	
E-3A Tactical Electronic Support System (TESS)	Operations	395	
E-9A Airborne Platform / Telemetry Relay	Logistics	1156	
F-4 Weapon System Trainer (WST)	Operations	7612	2995
F-4G Trainer Weapons System Aircraft	Requirements		3994
RF-4C AN/ALQ-125 Electronic Warfare System	Requirements	1432	4961
F-15A/B OFT	Operations	1592	
F-15C/D OFT	Operations	14937	
F-15A/B/C/D OFT (funding total)			14885
F-15E Aircraft Maintenance Trainer	Logistics	1112	
F-15E WST	Operations	9753	
F-15E (funding total)			4094
F-16A/B OFT	Operations	385	
F-16C/D WST	Operations	10538	
F-16 Maintenance Trainer System	Logistics	4922	
F-16A/B/C/D (funding total)			9460
F-111 WST	Operations	6415	6725
EF-111A OFT	Operations	4687	4542
T-38 Cockpit Procedure Trainer (CPT)	Operations	194	
A/FA T-40 CPT	Operations	65	
Airborne Battlefield Command and Control Center	Requirements	535	
AN/FPQ-18 Drone Tracking and Control System	Logistics	1443	5949
AN/TLQ-29 Comfy Sword	Communications	1335	
AN/TLQ-30 Comfy Dish	Communications	1518	

Computer Based	Operations	635	
Instructional			
Training System			
GBU-15 Part Task Trainer	Operations	500	1398
Ground Launched Cruise	Operations	564	350
Missile Flights			
Lantirn Core	Operations	4051	6677
Lantirn Part Task Trainer	Operations	871	
Laser Vector Scoring	Requirements		
System/Missile			
End-Game Scoring			
System			
On-Board Missile Early	Requirements		
Warning System			
System Trainer Exercise	Operations	4922	
Module			
TAC Training	Operations		5393
Tacit Rainbow	Requirements	27757	
Theater Mission Planning	Operations	71	
System			
Weapons Range	Operations		1055
<b>TOTAL</b>		<b>112427</b>	<b>76216</b>

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